Substance Alchemist - A real game changer

Blog - Art - 01

Luca Hohmann
business@lucahohmann.com

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Abstract

This is the first blog post in the category 'Art' on my personal blog 'lucahohmann.com/blog'. It describes what Substance Alchemist is and how it may be a good entry point into the Substance Suite. It also features what I believe it can be useful for and how it may affect the indie games and student scene.

Please note, that all materials rendered in Unreal Engine 4 do not show their maximum quality, as I'm new to UE 4 and used a basic setup for the images.

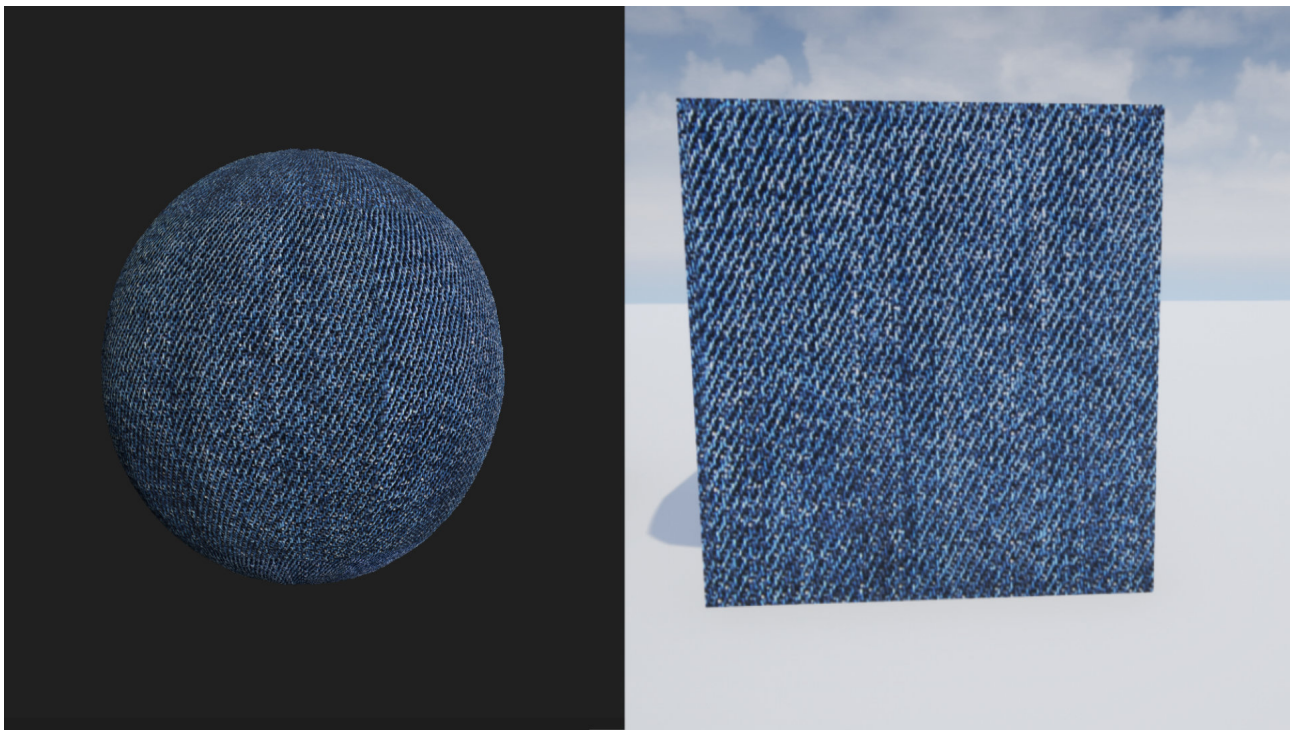

Figure 0.1 Jeans material in SA (l), rendered in UE4 (r)

1 Introduction

1.1 What is Substance Alchemist?

Substance Alchemist (SA) is a material generation tool by Allegorithmic, which currently is in its open beta phase. It offers the possibility to generate materials from images, mix existing materials, and apply all sorts of effects and variations onto said materials.

1.2 A quick look at Alchemist

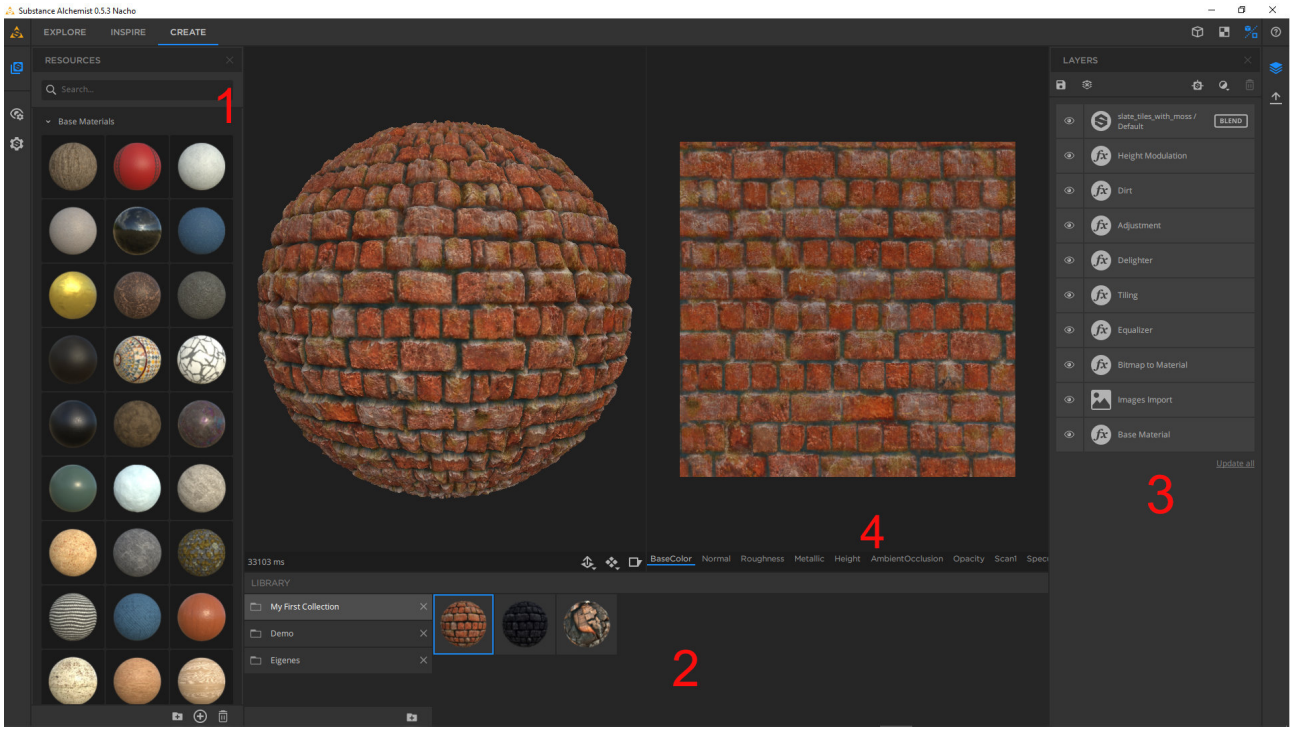

Figure 1.1 Substance Alchemist UI

Before going over to the interesting topics, I want to give everyone a basic understanding of the most important UI and functionality of the program (if you already know SA, skip to 1.3). Therefore I have added a screenshot of me working on a brick material. Besides this mode, there are two more. The 'Explore' and 'Inspire' mode. The Explore mode functions as a view mode, to simply take a look at the available materials. The Inspire mode on the other hand allows you to load a material and an image. The program then identifies some colors according to the chosen rules from the image. After this step, the program generates variations of the loaded material with the available colors. But the main focus is definitely the Create mode, seen in Figure 1.1:

(1) Resources Tab - Libary of included base materials, as well as materials from Substance Share.
(2) Material Libary - Libary of your own materials.
(3) Material Stack - A stack containing all images and effects the material is created with.
(4) Map View - 2D view of all maps the material is made of.

The first 2 parts are self-explanatory, as they contain materials from different resources. The material stack is the heart of the program. Here you can choose images, materials and effects which should be overlaid to generate the different maps of the material. The image to material importer is the most powerful part of the stack. It allows you import an image you took and transform it into a material with 1 click. After that you can apply all sorts of effects, make the material tileable, blend more materials in and so much more.

1.3 Why do I write about it?

At the preceding Game Developer Conference 2019 in San Francisco, Allegorithmic launched the open beta phase of Substance Alchemist. As a student I am eligible to get a student license for the complete Substance Suite (thank you a thousand times Allegorithmic <3) and play around with Substance Painter, Designer and now Alchemist. But wait, why don't I write about one of the other products? Well for more information on this, see Entry into Substance Suite. Because Substance Alchemist has just been released to the public, there is not much been said about it yet and everyone is currently exploring the tool.

But because I'm taking part in gamejams as often as possible, and also have to work on semester projects for our games related lectures, I think I can provide some interesting thoughts about this new tool. Because I'm not an art or design student, but rather a games engineering student, who is capable of doing some 3D art, I might cover a relatively big group of people, who are or will come into the same situation.

2 Entry into Substance Suite

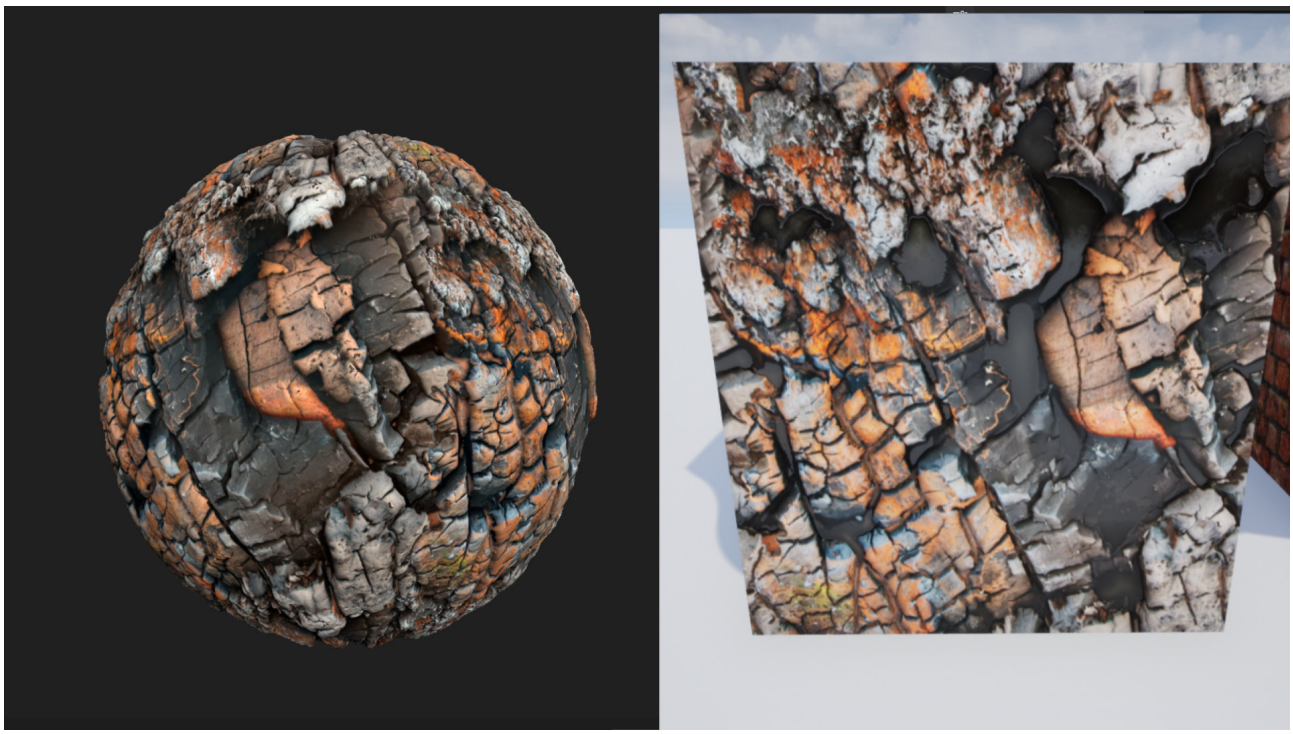

Figure 2.1 Broken clay with water material in SA (l), rendered in UE4 (r)

2.1 Why Alchemist and not Painter or Designer?

Well Alchemist is completely different from the other tools in terms of usability. While Designer and Painter require experience in texture and generation tools or have a difficult learning curve, Alchemist has a learning curve as flat as $f(x) = 0$. I just watched the base tutorial for this program over at Substance Academy and after finishing the first material, I continued with my own images. Additionally the program does not offer you hundreds of hundreds effects, but concentrates on the very important and powerful effects. This allows everyone to quickly gain a basic understanding of every effect.

2.2 How Alchemist may be the perfect entry into the suite

On the one hand Alchemist is very easy to learn and understand, on the other hand it introduces one to the most important parts of texture generation. As an extra, you can import custom effects and materials from all other products, so that it is easily implemented into the workflow.

But why does it make it easier to get into the other programs? I see two important reasons. The first one being that Alchemist can act as a safe haven. Every time you get overwhelmed by all possibilities, variables and effects the other tools offer, you can come back to this rather simple program. This is more true for Designer than Painter. In Designer you create materials as well, but much more complex ones, and from ground up, rather than from a photo or existing materials. Now after fiddling with some parts of Designer, you can come back, import view, improve and vary what you created.

The second reason is, that as far as I have read in several interviews and articles, most of the features in Alchemist are also available in the other tools. So when you know Alchemist, and stumble upon a feature in one of the other tools, you have a much better understanding in the more complex environment, than with blindly walking into the tools. With these two reasons, I'm looking forward to dive into Designer and Painter myself.

3 Effects on the indie and student gamedev scene

Now we have looked into the new program, saw how it might open up the other tools and now I want to take a look into my fields. The indie and student scene. As a student, projects created in the course of a lecture are often underwhelming, graphical wise. This has 2 obvious reasons. The first one being, that engineering students are neither artist nor design students. So simply the interest of learning these things is not present for many. The second reason is, that no project takes graphics into account or only as a small portion of the grade. Therefore the effort needed to create models, effects, materials, etc.. is not so well invested, but rather a personal goal. And yeah we also do not have exclusively games lectures, simply because we still study computer science. But now we are able to create better looking demos, with less effort than before. Now the most effort for the artists goes into modelling the objects, which should carry these materials. At this point in time, this could be simplified as, with the process of photogrammetry. Programs like Meshroom, which are free and also straight forward, high quality meshes can be created from a few images taken with a smartphone camera.

The combination of photgrammetry and texture generation in Alchemist might be the most powerful way to create stunning visuals with the effort at an all time low.

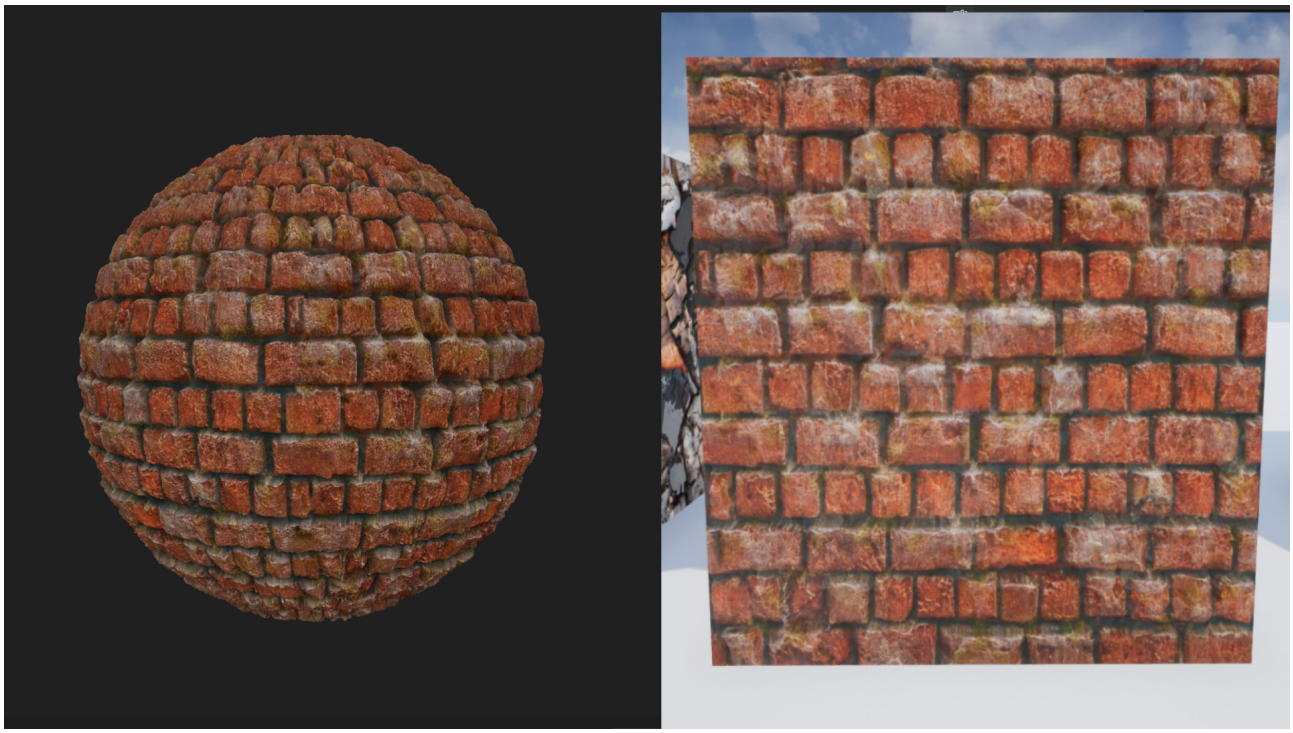

Figure 3.1 Brick wall material in SA (l), rendered in UE4 (r)

In the indie scene, which I unconsciously joined at the beginning of my studies, games are often in rather simple graphical style. And this is good. It differentiates them from the big budget games. But I think at some point in the future, small studios of 4+ people, might want to create more realistic looking games as well. At the moment this is very difficult, because a lot of artists are needed, whom might not be available. But with more accessible and easier artistic tools, even non artists can work on graphical parts of the game. And this does not exclusively apply to Allegorithmic tools, but rather to all tools, from all development software providers. The easier tools, or spin-offs from tools become, the more high quality games can be created by smaller teams. This is also a trend we're currently seeing in the game engine field. Unreal and Unity are both competing for the most user friendly, powerful and customizable engine out there. Just last week at the GDC both companies revealed their new tools, plugins, and roadmaps for the next months.

I hope that this trend continues and allows us, small teams and single developers, to follow our passion and create the games we always dreamed of.

4 Final words

Here I just want to acknowledge the brilliant creators behind the source images of the seen materials and give some more information about the blog. All images were taken from the pexels open stock photo library.

Jeans stock by
https://www.pexels.com/@digitalbuggu
Clay stock by
https://www.pexels.com/@martinskrastins
Brick wall stock by
https://www.pexels.com/@fancycrave

I also want to remind you, the reader, to subscribe to my RSS feed (lucahohmann.com/feed)in order to receive new blog posts. From now on I will try to release it every Tuesday evening at around 7pm.

Blog posts about art won't be that frequent tho, simply because I'm more of a programmer than an artist. But at given times, I will write about what I created, new software I'm using and other things. One that will come up in a few weeks, will be about my art challenge. Currently I'm considering to change my voxel challenge in Magica Voxel into a material challenge in Substance Alchemist. To stay informed, and see the results follow me on twitter @lucahohmann

And yes, thanks for reading, and have a good day. See you next time
Luca =)